# Report for 2004VI39B: Production, Pricing and Distribution Policies of Public Water in St. Thomas, U. S. Virgin Islands

- Other Publications:
  - Solomon, Hosana, 2005, Production, Pricing and Distribution Policies of Public Water in St. Thomas, U. S. Virgin Islands, Water Resources Research Institute Conference, University of the Virgin Islands, St. Thomas, USVI.

Report Follows

## Problem and Research Objectives

Historically, rainwater during the wet season provided the only major sources of fresh water caught on the roofs and stored on cistern. However, due to the irregularity of the rainfall, and high runoff associated with the hilly topography of the islands, there was a constant necessity for establishing a larger and more satisfactory supply. Major population growths in the 1960s and '70s due to tourism and increased standard of living have increases the per capita demand of water in the territory out stripping the traditional supply of rainwater. The search for adequate water supply for the territory, lead to the distillation of seawater which is costly but readily available as the dependable alternative fresh water source for the islands. The first distillation plant was installed in the Virgin Islands in 1962 by the government run by the Water and Power Authority (WAPA). Since then distillation plants have expanded in the three islands public sectors providing almost all the portable water supply to the islands.

Despite a significant cost of producing water in the islands, research information on cost and prices do not exist in the territory. The few studies on water supply situation in the islands by Water Resources Research Center of the Caribbean Research Institute College of the Virgin Islands date back to early 70's. There is no rigorous evaluation of the effectiveness of water pricing and distribution undertaken in the territory. As government funds become scarce, it is important such programs be evaluated in order to correct inefficient activities and to expand activities that have greater potential for the use of water. The objective of this study is critically examine the cost of production and pricing policy of water to achieve the desired policy objectives set by the public authorities. The intense competition for water between various sectors that results from population growth, area expansion, and life style changes, may affect various decisions associated with water allocation and long-term investments.

In addition to the local water problem of the Virgin Islands, there are global water problems in many areas of the world where distillation of seawater could be an option of various small islands and other costal territories. The experience of water production and pricing policy in the Virgin Islands could have global implications in areas where the water demand exceeds the supply from other traditional sources like streams, fresh water lakes and under ground water sources.

## Methodology

1. Monthly historical cost data of WAPA's operation of water production, distribution, depreciation and administration for the period of 1993-2004 collected in summer 2204.

2. Monthly ales data of water to various WAPA customers, commercial, residential, standpipe, VI Government and other Government 1993-2004 collected in summer 2004.

3. Cost of water delivery by trucks from various venders gathered in summer 2005.

Data in the process of collection summer 2005.

4. Monthly rainfall data collected from Weather Research Station at UVI for the island collected.

5. Data on cistern construction and capacities of dwellings are collected.

**Principal Findings and Significance**

Preliminary analysis of the data was conducted in Fall 2004 and in Spring 2005. A preliminary study reported was presented on February 24, 2005 at the 2005 Water Resources Conference organized by VI-WRRI.

Based on the preliminary research findings WAPA's water customers are VI Government (48 %), commercial (29%), residential (19%), standpipe sales (4%) and Federal government agencies (1%). Over the study period WAPA's customer numbers have grown steadily at an average of 5% per year. The study also indicated that the costs of water production and WAPA revenue from sale of water have declined over the study period.

About 90 % of dwellings in the island have cisterns and depend on rainwater collected from rooftops. From the data, standpipe sales indicate only 5% of the sales from WAPA that indicate most of the dwellings to depend on cistern water. The cost of water delivery by trucks contributes significantly to the price of water about three times the cost of water.

| **Water Delivery by Truck to Residential Dwellings** | **5200 Gallon Truck** | **3200 Gallon Truck** |
|---|---|---|
| Average Price per load to Fortuna | $287.50 | $ 183.00 |
| Price per 1000 gallon | $ 55.29 | $ 57.19 |
| WAPA price per 1000 gallon | $ 16.67 | $ 16.67 |